

List of Discoveries of Galileo Galilei

By Lucas Kittmer, eHow Contributor| updated April 18, 2011

Galileo's most well-known discovery was that the Earth orbits the sun.

Galileo Galilei was an Italian physicist and astronomer whose most famous discovery was that the Earth revolves around the sun. But Galileo was also responsible for several other major discoveries in the field of physics and motion. While forced to deal with an inquisition by the Church over his work, Galileo forged on, making paradigm-shifting discoveries that redefined the known laws of the universe.

Earth's Orbit

Shortly after the telescope was invented in the Netherlands, Galileo fashioned his own from makeshift spectacle lenses. He learned how to make increasingly powerful telescopes, which he eventually used to monitor the solar phases of the planet Venus. After noticing Venus went through similar phases to the moon, he concluded the sun must be the central point of the solar system, not the Earth as was previously assumed.

The Principle of the Pendulum

At just 20 years of age, Galileo was in a grand cathedral and noticed that a lamp swinging overhead took exactly the same period of time for each swing, even as the distance of a swing got progressively shorter. This principle of the pendulum made Galileo famous, and was eventually used to regulate clocks. The law states that a pendulum will always take the same amount of time to finish a swing because there is always the same amount of kinetic energy in the pendulum -- it is merely transferred from one direction to the other.

The Law of Falling Bodies

This law states that all objects will fall at an equal rate, when accounting for relatively minor differences in aerodynamics and weather conditions. Galileo demonstrated this theory by climbing to the top of the Leaning Tower of Pisa and dropping items of various weight off the side. All items hit the ground at the same time. Contrary to the conventional wisdom established by Aristotle, the speed of a heavy object's fall was found to not be proportional to its weight.

Astrological Discoveries

Galileo made several astronomical discoveries that people today simply accept as common sense. He discovered that the surface of the moon is rough and uneven as opposed to smooth as people had thought, and in 1610 he discovered four moons revolving around Jupiter. More important than either of these was his finding that many more stars exist than are visible to the eye, an assertion that came as a shocking surprise to the scientific community at the time.

Mathematical Paradigm of Natural Law

For centuries, natural philosophy, which at that time encapsulated such fields as physics and astronomy, was discussed and theorized from a qualitative standpoint. Galileo didn't just discover specific laws of the universe, he reformed the qualitative standpoint and established mathematics as the language of scientific discovery. He pioneered the scientific method and ushered in the modern practice of

experimentation and calculated laws of nature. His doing so led to the revelations that many of the laws of Greek philosophers such as Plato and Aristotle were incorrect.